## *Amendments to the Claims*

The listing of claims will replace all prior versions, and listings of claims in the application.

1.      *(currently amended)* A method for receiving an optical data signal, comprising:

(1)      receiving an optical data signal;

(2)      converting the optical data signal to an electrical signal having a symbol rate;

(3)      generating N sampling signals having a first frequency that is lower than the symbol rate, the N sampling signals shifted in phase relative to one another, wherein N is an integer greater than one;

(4)      controlling N analog-to-digital converter ("ADC") paths with the N sampling signals to sample the electrical signal at the phases, to produce samples;

(5)      performing at least one M-path parallel digital process on the samples, wherein M is ~~not equal to~~ greater than N; and

(6)      generating a digital signal representation of the optical data signal from the samples.

2.      *(previously presented)* The method according to claim 1, wherein step (5) further comprises performing an equalization process on the samples.

3.      *(previously presented)* The method according to claim 2, wherein step (5) further comprises performing a Viterbi equalization process on the samples.

4.      *(previously presented)* The method according to claim 2, wherein step (5) further comprises performing a feed-forward equalization process on the samples.

5.      *(previously presented)* The method according to claim 2, wherein step (5) further comprises performing a decision feedback equalization process on the samples.

6.      *(previously presented)* The method according to claim 2, wherein step (5) further comprises performing Viterbi equalization and feed-forward equalization processes on the samples.

7.      *(previously presented)* The method according to claim 2, wherein step (5) further comprises performing Viterbi equalization and decision feedback equalization processes on the samples.

8.      *(previously presented)* The method according to claim 2, wherein step (5) further comprises:

performing one or more of the following types of equalization processes on the samples:

    Viterbi equalization;

    feed-forward equalization; and

    decision feedback equalization.

9.      *(currently amended)* An optical receiver, comprising:

    a receiver input;

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an optical-to-electrical converter coupled to the receiver input;

an analog-to-digital converter ("ADC") array of N ADC paths, wherein N is an integer greater than 1, each ADC path including an ADC path input coupled to an output of the optical-to-electrical converter; and

an M-path digital signal processor coupled to the ADC array, wherein M is ~~not~~ ~~equal to~~ greater than N.

10.    *(previously presented)* The optical receiver according to claim 9, wherein the digital signal processor includes an equalizer.

11.    *(previously presented)* The optical receiver according to claim 10, wherein the equalizer comprises a Viterbi equalizer.

12.    *(previously presented)* The optical receiver according to claim 10, wherein the equalizer comprises a feed-forward equalizer.

13.    *(previously presented)* The optical receiver according to claim 10, wherein the equalizer comprises a decision feedback equalizer.

14.    *(previously presented)* The optical receiver according to claim 10, wherein the equalizer comprises a Viterbi equalizer and a feed-forward equalizer.

15.     *(previously presented)* The optical receiver according to claim 10, wherein the equalizer comprises a Viterbi equalizer and a decision feedback equalizer.

16.     *(previously presented)* The optical receiver according to claim 10, wherein the equalizer comprises a feed-forward equalizer and a decision feedback equalizer.

17.     *(previously presented)* The optical receiver according to claim 10 wherein the equalizer comprises one or more of:

> a Viterbi equalizer;
>
> a feed-forward equalizer; and
>
> a decision feedback equalizer.

18.     *(currently amended)* An optical receiver, comprising:

> means for receiving an optical data signal;
>
> means for converting the optical data signal to an electrical signal having a symbol rate;
>
> means for generating N sampling signals having a first frequency that is lower than the symbol rate, the N sampling signals shifted in phase relative to one another;
>
> means for controlling N analog-to-digital converter ("ADC") paths with the N sampling signals to sample the electrical signal at the phases to produce samples;
>
> means for performing at least one M-path parallel digital process on the samples, wherein M is ~~not equal to~~ greater than N; and

means for generating a digital signal representation of the optical data signal from the samples.

19.     *(previously presented)* The system according to claim 18, wherein the means for performing digital processes on the samples include means for equalizing the samples.

20.     *(previously presented)* The system according to claim 19, wherein the means for equalizing the samples comprise means for performing a Viterbi equalization process on the samples.

21.     *(previously presented)* The system according to claim 19, wherein the means for equalizing the samples comprise means for performing a feed-forward equalization process on the samples.

22.     *(previously presented)* The system according to claim 19, wherein the means for equalizing the samples comprise means for performing a decision feedback equalization process on the samples.

23.     *(previously presented)* The system according to claim 19, wherein the means for equalizing the samples comprise means for performing Viterbi equalization and feed-forward equalization processes on the samples.

24.     *(previously presented)* The system according to claim 19, wherein the means for equalizing the samples comprises means for performing Viterbi equalization and decision feedback equalization processes on the samples.

25.     *(previously presented)* The method according to claim 2, wherein step (1) comprises receiving the optical data signal from a multimode optical fiber and step (5) comprises equalizing multimode dispersion from the multimode optical fiber.

26.     *(previously presented)* The method according to claim 2, wherein step (1) comprises receiving the optical data signal from a single mode optical fiber and step (5) comprises equalizing chromatic and/or waveguide dispersion from the single mode optical fiber.

27.     *(previously presented)* The method according to claim 2, wherein step (1) comprises receiving the optical data signal from a multimode optical fiber and step (5) comprises equalizing chromatic and/or waveguide dispersion from the multimode optical fiber.

28.     *(previously presented)* The method according to claim 2, wherein step (1) comprises receiving the optical data signal from a single mode optical fiber and step (5) comprises equalizing polarization mode dispersion from the single mode optical fiber.

29.     *(previously presented)* The method according to claim 2, wherein step (1) comprises receiving the optical data signal from a single mode optical fiber and step (5) comprises equalizing dispersion induced in the single mode optical fiber by laser chirping.

30.     *(previously presented)* The method according to claim 2, wherein step (1) comprises receiving the optical data signal from a transmitter that lacks external modulators, and step (5) comprises equalizing excess dispersion induced by laser chirping.

31.     *(previously presented)* The optical receiver according to claim 10, wherein the input is coupled to a multimode optical fiber and the equalizer equalizes multimode dispersion from the multimode optical fiber.

32.     *(previously presented)* The optical receiver according to claim 10, wherein the input is coupled to a single mode optical fiber and the equalizer equalizes chromatic and/or waveguide dispersion from the single mode optical fiber.

33.     *(previously presented)* The optical receiver according to claim 10, wherein the input is coupled to a multimode optical fiber and the equalizer equalizes chromatic and/or waveguide dispersion in the multimode optical fiber.

34.     *(previously presented)* The optical receiver according to claim 10, wherein the input is coupled to a multimode optical fiber and the equalizer equalizes polarization mode dispersion from the single mode optical fiber.

35.     *(previously presented)* The optical receiver according to claim 10, wherein the input is coupled to a single mode optical fiber and the equalizer equalizes dispersion induced in the single mode optical fiber by laser chirping.

36.     *(previously presented)* The optical receiver according to claim 10, wherein the input receives the optical data signal from a transmitter that lacks external modulators, and the equalizer equalizes excess dispersion induced by laser chirping.

37.     *(previously presented)* The optical receiver according to claim 19, wherein the means for receiving an optical signal is coupled to a multimode optical fiber and the means for equalizing comprises means for equalizing multimode dispersion from the multimode optical fiber.

38.     *(previously presented)* The optical receiver according to claim 19, wherein the means for receiving an optical signal is coupled to a single mode optical fiber and the means for equalizing comprises means for equalizing chromatic and/or waveguide dispersion from the single mode optical fiber.

39.    *(previously presented)* The optical receiver according to claim 19, wherein the means for receiving an optical signal is coupled to a multimode optical fiber and the means for equalizing comprises means for equalizing chromatic and/or waveguide dispersion in the multimode optical fiber.

40.    *(previously presented)* The optical receiver according to claim 19, wherein the means for receiving an optical signal is coupled to a multimode optical fiber and the means for equalizing comprises means for equalizing polarization mode dispersion from the single mode optical fiber.

41.    *(previously presented)* The optical receiver according to claim 19, wherein the means for receiving an optical signal is coupled to a single mode optical fiber and the means for equalizing comprises means for equalizing dispersion induced in the single mode optical fiber by laser chirping.

42.    *(previously presented)* The optical receiver according to claim 19, wherein the means for receiving an optical signal receives the optical data signal from a transmitter that lacks external modulators, and the means for equalizing comprises means for equalizing excess dispersion induced by laser chirping.

43.    *(previously presented)* The method according to claim 1, wherein step (5) comprises decoding a convolutional code.

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44.     *(previously presented)* The method according to claim 1, wherein step (5) comprises decoding a trellis code.

45.     *(previously presented)* The method according to claim 1, wherein step (5) comprises decoding a block code.

46.     *(previously presented)* The optical receiver according to claim 9, wherein the digital signal processor comprises a convolutional decoder.

47.     *(previously presented)* The optical receiver according to claim 9, wherein the digital signal processor comprises a trellis decoder.

48.     *(previously presented)* The optical receiver according to claim 9, wherein the digital signal processor comprises a block decoder.

49.     *(previously presented)* The optical receiver according to claim 18, wherein the means for performing digital processes on the samples comprises means for decoding a convolutional code.

50.     *(previously presented)* The optical receiver according to claim 18, wherein the means for performing digital processes on the samples comprises means for decoding a trellis code.

51.     *(previously presented)* The optical receiver according to claim 18, wherein the means for digitally performing digital processes on the samples comprises means for decoding a block code.

52.     *(previously presented)* The method according to claim 1, wherein M equals 2N.

53.     *(cancelled)*

54.     *(previously presented)* The optical receiver according to claim 9, wherein M equals 2N.

55.     *(cancelled)*

56.     *(previously presented)* The system according to claim 18, wherein M equals 2N.

57.     *(cancelled)*